October 28, 1988

DISTRICT 9
LONG RANGE OPERATION PLAN
First Update

A. GENERAL ELEMENTS

1. Motorist Information Services

a. Need for Service

The transportation system within the District spans a wide variety of terrain primarily serving recreational traffic vacationers, and tourists. Motorists often experience diverse weather and road conditions ranging from 1) clear, warm travel to high intensity winds with severe thunder storms, or 2) dry pavement in moderate temperatures to snowpack and blizzard conditions. Road closures are not uncommon due to blowing dust, flash flooding, mud, washouts, and snow, and can occur with little or no advanced warning. All these variable conditions point out the need for a good motorist information system.

b. Current Service

Several fixed signs advising motorists of various road conditions affecting their travel are located along the major Route 14-395 corridor. In 1987 a sign on Route 395 indicating road conditions on Sierra passes was relocated from the California-Nevada State line to a point 15 miles north near Gardnerville, Nevada. This location gives motorists more advanced warning so they can change their itinery or stay over in an urban area.

A changeable message sign is located at the north city limits of Bishop.

Information on road conditions is routinely taped by maintenance personnel, and is available to motorists via a highway advisory radio (HAR) located at the District Office. The tapes are updated as conditions change. Local radio stations also carry this information on a daily basis.

Road conditions are also available by public telephone located in the front of the District office. This information comes through the C.H.I.N. Network originating out of Headquarters in Sacramento. Three local radio stations within the District subscribe to the C.H.I.B.N. service andbroadcast road and weather information from Bishop, Mammoth Lakes, and Ridgecrest.

c. Planned Services

Changeable message signs are being planned for the Mojave-Tehachapi area on Routes 58, at Walker Pass on Route 178W, and possibly at Topaz Lake on Route 395. One existing sign at Bishop may need upgrading to provide more information.

Fixed or turnable message signs are being considered for locations on Routes 136 and 190 leading into Death Valley. These signs would show road closures and available detour routes at times of severe storms, flash flooding, or construction work in the Kern River Canyon.

A HAR system is planned to be placed near Mojave. This system will advise motorists coming from Southern California (our major trip-generator) of general road conditions throughout the District. This information could also be transmitted to commercial radio stations in Southern California for an even broader coverage.

Another HAR system may be located at Topaz Lake at our northern District boundary to advise motorists coming south from Nevada of road conditions.

Sometime in the future it would be beneficial to install changeable message signs or radio information systems on Route 395 just north of Interstate Route 15, and on Route 14 north of the Interstate 5 Junction. These facilities could provide road information on specific recreational areas visited by motorists originating from Southern California. This early readout on road conditions could spare tourists the inconvenience of extremely long trips with potentially unhappy or frustrating endings.

The District has an aggressive program of service and recreational signing to help motorists in remote areas find their needs or destinations. The District is also scheduled to receive a pickup and trailer to carry a mobile changeable message sign and HAR to respond to isolated incidents.

2. Surveillance Programs

a. Program Goals and Objectives

Surveillance of freeway and conventional highway operations should be an established program with regularly scheduled monitoring of various sections of highways. The objectives of this program would be to identify potential problem areas using various highway factors and to make improvements to these areas before serious problems develop. Items for surveillance will include:

- Queues of traffic
- Bottleneck areas
- Repetitive illegal maneuvers
- Accident statistics
- Unusual driver behavior indicating frustration
- Skid marks and off-pavement wheel tracks
- Traffic counts

b. Current Program

A 3-year, rotational traffic count program has been established for all routes with auxilliary counts taken on an as-needed basis. Operational and safety surveillance take place on all "Table C" locations, all fatal locations, and other identified areas.

Traffic counting has been streamlined by the use of more "Sarasota" systems.

c. Planned Program

The short-term goal is to work with current equipment, and to perform monitoring tasks that could prevent severe problems to motorists. As routines and procedures are streamlined, random areas could be checked on a continual basis. Traffic Counts are also planned to be taken at all major intersections throughout the District.

In the future, as more 4-lane sections are constructed, emphasis on operational surveillance will gradually give way to safety-oriented surveillance on the major routes. The frequency of surveillance on minor routes will likely increase as the result of operational review needs.

3. CHP Coordination

a. Background

The district has a long-standing policy and history of excellent cooperation with the CHP. They have been an extremely valuable resource in filling some of the gaps currently experienced in operational surveillance.

While the receipt of operational information is important, we also benefit from cooperation in work that requires slow travel on two-lane highways. Good accident reporting is another element that is of benefit to us in coordinating with the CHP.

b. Current Policy

The District Traffic Department meets on an informal basis with each Area Commander to discuss items of mutual interest, and to exchange suggestions about possible improvements in our highways or to our relationships. The Traffic Department also receives and responds to ideas and suggestions from individual officers who perceive a problem that may be developing.

c. Planned Policy

Both our short- and long-term goals in CHP coordination are to set up meetings on a regular basis, and to formalize a procedure for information exchange. No other coordination changes are anticipated.

4. Incident Response

a. Goals and Objectives

The District has put together a districtwide plan for responding to major incidents on an organized and timely basis. The definition of a major incident is one which may be expected to close a transportation route for over four hours. The objective is to work toward providing the motorist viable options for reaching a destination without undue delay, and without getting lost.

b. Current Plans

The District has completed a skeleton plan for the most major incidents reasonably expected in our area. This consists of general guidelines for responding to earthquakes or volcano activity. Currently, the District is working with Inyo County and the City of Bishop to formulate a Community Emergency Bypass Plan. Some work has been completed on other frequent occurrences, such as flood and high wind road closures. Under the completed portions of

the plan, information available to motorists consists of map handouts for long distance detours (hundreds of miles) and standard temporary guidance signing for shorter detours.

c. Future Plans

The target for incident response within the short-term is to review and update guidance signing packages for all incidents that are predicable as semi-annual or more frequent occurrences. These packages are stored in locations that provide easy access, and permit quick installation. Motorist information services will be meshed with incident response to serve as an aid in reducing delays.

When routing becomes necessary for evacuation and/or bypass of catastrophic incidents, maps and guidance signing will be needed in coordination with other districts, agencies, or the State of Nevada to provide an orderly movement of traffic out of or around the affected area. These operational plans and activities will be coordinated with all local and regional plans as necessary, and will include possibilities for emergency bypasses of all communities.

The District incident response plans will not change too much over the long term from the short-term plan. The largest changes will be to refine elements and features as they become evident from each incident experience. New technology, such as visual reinforcement of radio messages at key locations. could be included.

An action plan has been developed to periodically review and update (annually as a minimum) Traffic Management Services.

d. Incident Response Action Plan

PLAN OBJECTIVE - The objective of our incident response plan is to assure a process for providing motorists with timely information and alternate routes for reaching their destination without undue delay, confusion or getting lost.

CURRENT METHODS OF RESPONSE - The following current methods of providing major incident traffic management services will be reviewed and evaluated for effectiveness and completeness:

- Skeleton Plan guidelines for responding to the most frequent and predictable incident occurrences;
- Handouts to motorists for long distance detours;
- Location and inventory of temporary guidance signing for minor detours;
- Location of present and planned HAR installations;
- Location of present and planned CMS;
- Liaison with other agencies to exchange information and;
- Process for releasing information to the public through local radio stations and other news media.

PROBLEM SCOPE - A data base of historical incidents will be established and evaluated to provide a means for mitigating impact of future occurrences.

ORGANIZATIONAL STRUCTURE - The current incident response team draws its members from the Traffic and Maintenance Engineering Branches as necessary. The structure will be reviewed for appropriateness and modified as necessary to achieve a high level of service.

EQUIPMENT - To achieve quicker incident reponse, a 4x4 utility body pickup with skid mount CMS and trailer with HAR has been ordered and will be placed in service in the very near future.

COST RECOVERY - Current cost recovery procedures for labor and damage to highway facilities will be reviewed and evaluated.

COORDINATION EFFORTS - Communication with other responsible agencies will be maintained and personnel brought on board as necessary to provide a high level of response.

PREPLANNING - After reviewing and evaluating current response procedures, the current preplanning measures will be updated, modified and completed as necessary.

IMPLEMENTAITON - Our updated response procedures will be placed into action and tested for efficiency and effectiveness. Training for response team personnel will be identified to improve their overall performance.

FOLLOW-UP - This action plan will be reviewed and evaluated on an annual basis. Further modifications may be required to maintain the highest level of traffic management services.

5. Major Event Planning and Response

a. Current Planning

The District is reviewing several "major events" that occur on a regular basis each year. Our definition of a major event is "an occurrence on the State highway that can be predicted, and will require rerouting of traffic from the normal pattern of travel, or an occurrence that can be predicted that will require a delay to traffic of one hour or more". Events currently monitored and anticipated are events planned by local communities that attract extraordinary numbers of people to the area. These events generally require rerouting of traffic or special traffic handling.

No significant truck operational problems are experienced in the District. Occasionally the truck escape ramp on Route 178W (Walker Pass) is used with only minor consequences. Pavement distress has occurred in the outside PCC lanes on the Tehachapi grade between Bakersfield and Mojave. This is due to significantly higher truck volumes than anticipated at the time of design (1960's). Other truck routes are not currently showing any signficant problems.

A westbound truck scale facility is being constructed on Route 58 between Mojave and Tehachapi. This facility will help to eliminate most overloads that are causing roadway problems in this area.

Two loadometer scale pits have been constructed on Route 395, one south of Bishop and one at the junction of Route 89 near Topaz Lake. These facilities are used periodically by the CHP to monitor truck weights.

b. Current Planning

Intersection improvements are being planned to accommodate 40' KPRA trucks. Consideration is being given to lighting at the loadometer scale pits. The District has purchased new truck classifiers and are beginning to put them into operation. Several locations have been identified where truck climbing lanes are needed. These have been put on the District list of HB-4 candidate projects.

c. Future Planning

Short-term goals are to improve the truck census program. Current truck count data proves that information being obtained is not as accurate as it should be.

Long-range goals are to provide shoulder widening on various routes to accommodate wheel-paths of larger trucks that continuously breakdown the existing roadway edge. Monitoring for operational problems at spot locations is anticipated, and will be corrected by minor curve corrections, climbing lanes, or turnouts.

Most of the major events in the district are predictable in scope and effect. The handling of traffic is coordinated with the local community on an informal basis, outside the permit process. State signs are often used for detours, and traffic handling is normally done by local law enforcement personnel.

b. Future Planning

The short-term goal is to formalize traffic handling, since it is generally an annual process that repeats itself, and make some improvements in detour routing. This will reduce the number of lost tourists. It is planned to gradually relinquish the State involvement to the locals until our only involement will be to inspect and monitor the traffic handling for the event.

The only change is planning and response for major events will be to organize for new events as they are initiated. It is not anticipated that planning for a one-time event, such as a rock concert is needed, due to the geographic isolation of the District. New annual events are expected to occur as an inducement to tourism, since tourists are the largest and most important industry in the District.

6. Truck-Related Operations

a. Existing Conditions

Major truck routes within the District are Route 58 in the east-west direction, and on the Route 14-395-6 corridor in the north-south direction. Other routes carry only moderate-to-light truck traffic, and many are being restricted to 38' KPRA.

If truck volumes continue to increase in the future on Tehachapi Grade (Route 58), the construction of separate truck climbing lanes might ease any resulting operational problems. However, construction of these lanes would involve excessive costs and possible environmental problems.

7. Other District Concerns

The District has prepared a plan for winter chain control. Highway operational problems are often experienced because motorists ignore chain control signs, and then get into trouble when they reach an area that demands chains. To help this situation, several new chain control areas will be constructed at key locations, as well as enlarging some of the existing sites.

Operational improvements and safety considerations are big items among the District's goals. There is a need for more guardrail, nighttime delineation, and spot safety and operational improvement on many highways. All routes within the District have been, or are continuing to be, inventoried to determine these needs. Rumble-strips are being provided on shoulders of all new projects between the southern District boundary and Bishop on Route 395 to reduce ran-off-the-road accidents.

The inventory for guardrail and delineator needs has been completed. Using various parameters, a priority list is being established and will be used to develop an orderly annual program for accomplishing placement and construction. Minor A & B funds will be utilized for this purpose.

Locations for recessed pavement markers were identified and many of these have been incorporated in other major/minor projects for construction. A few locations will be programmed within the next two years. This will greatly improve nighttime delineation.

Chain control and icy signs became a concern regarding potential fixed-objects. A program to upgrade these signs with slip-bases and turning mechanisms was developed and construction is almost complete.

Existing guardrail will be inventoried for conformance to height and safety standards. A program will then be developed to replace or upgrade locations as necessary.

B. FREEWAY OPERATIONS ELEMENTS

1. Operational Objective -- LOS

a. General Conditions

Out of the 977.6 miles of highways in the district, only 53.3 miles, or 5.4%, are designated as freeways. Operations on expressways are not necessarily the same as on freeways. However, enough similarity exists within the District on some sections of four-lane, divided expressways with a divided, unpaved median, to justify their inclusion in this plan. This adds another 96.6 miles, or 9.9%, of the total highway miles. Routes identified are as follows:

County	Route	Limits	Miles	Designation
Kern	14	0.0/12.6	12.6	F (Freeway)
		12.6/16.1*	3.5	E (Expressway)
		38.5/43.2	4.7	E
	58	77.3/101.9	24.6	F
		101.9/111.0	9.1	E
		114.7/127.8	13.1	E
		127.8/143.9	16.1	F
Inyo	395	0.7/25.8	25.1	E
		103.0/112.0	9.0	E
		122.3/129.5	7.2	E
Mono	395	0.0/8.0	8.0	E
		10.0/26.9	16.9	E
			149.9	(15.3% of total)

*Under Construction

These route segments are part of a statewide network of highways used for long distance travel. Much of this mileage serves heavy interstate commerce.

b. Goals and Objectives

In 1978 the District conducted a corridor study on Routes 14-395 between the Los Angeles County line and the Nevada State line. The conclusion of this study was to meet the needs of highway users by providing four lanes from the Los Angeles County line to Lee Vining. Most of this length will be constructed to expressway standards. It is highly desirable that level of service "B" be maintained for as much of the system as possible. This will contribute to better delivery of perishable goods which comprise a substantial percentage of the freight on these routes.

Long-range plans for these routes will be the same as short-term goals. Long-range hauling of perishable goods will be dependent on an efficient freight system.

2. Ramp Metering Strategies

The rural nature of the district, and the infrequent high ramp volumes entering the system, do not justify a need to develop a metering strategy, even in the long range.

3. High Occupancy Vehicle Strategies

a. Facilities

The District freeway and expressway system does not have any exclusive HOV lanes, nor are any envisioned in the future.

b. Services

The District has a minimum rideshare program with services available at a contract office in Bakersfield which serves the eastern portion of Kern County.

Van-pooling is encouraged within the more urbanized areas of the district, and is supported by the State through the handling of applications for Federal Grants towards the purchase of vehicles. Currently there are two vans commuting between Isabella and Ridgecrest.

4. Capital Outlay Strategies

The District cannot identify any short- or long-term need for auxiliary lanes or part-time lanes on any of our freeways. Long-range planning includes the goal of completing the Route 14-395 corridor to four lanes from south of Mojave to Lee Vining. This route carries most of the tourist traffic that visits the Eastern Sierra region. The long distances traveled in this corridor necessitate completion of this system to maintain as high a level of service as possible.

C. CONVENTIONAL HIGHWAY OPERATIONS ELEMENTS

1. Operations Objectives -- LOS

a. Current Conditions

Two-lane highways are operating near capacity on weekends, during summer months, and occasionally on weekdays. Four-lane highways through major cities and towns operate at or near capacity on a regular basis. Traffic is mostly comprised of tourists, with a large amount of Interstate Commerce. The average trip length is in excess of 200 miles per day. Distances between population centers or other convenient stopping places make it necessary for drivers to spend several hours in non-stop travel. The total travel time approaches four hours per trip.

b. Future Planning

Distance and time elements affect traffic. It is essential that a high level of service be maintained on these highways now and in the future. Decrease in level of service would increase trip time, leading to more driver frustration and higher accident rates. Two-lane highways are limited in options to maintain a good level of service while operating at capacity. It is planned to provide additional four-lane portions of highway on the corridors that are at or near capacity. These sections will be located on a priority basis in areas with limited passing sight distance, or in areas that experience heavy local traffic which adds to the long distance volume. Wherever possible, existing four-lane sections will be extended to improve the overall traffic flow.

On the Route 14-395 corridor between Mojave and Lee Vining short passing lane sections are being ruled out in favor of longer four-lane sections, because of problems on existing passing lanes. When operating at capacity, two-lane highways can develop long queues. When entering short passing lanes, vehicles tend to speed up and distribute themselves between the two lanes. Few vehicles are actually able to pass. This results in panic merging maneuvers causing an unacceptable level of service at the end of the passing lanes. Even with the steady traffic increases anticipated, it is expected that a good level of service can be maintained in the foreseeable future by completing this section to four lanes.

Shoulder widening is planned for other two-lane highways to improve operations and increase the level of service. This would be on a priority basis in accordance with ADT and accident statistics.

2. Signal Timing and Coordination

The District currently has 16 operating signals, with another one under construction in Ridgecrest. The majority of signals are in Ridgecrest and Bishop. In both of these cities the current placement of signals, and the character of traffic, make it difficult to establish signal coordination. The natural flow of traffic is governed by roadside conditions that vary as the density of traffic varies. Speeds are extremely low during peaks, and signal coordination may not help in this regard. Future plans for signal coordination will be dependent on local conditions.

In Bishop, were it possible to eliminate on-street parking, the highway (Route 395 - Main Street) could be restriped and a coordinated system established. This system would probably incorporate new signal installations if parking is provided at off-street locations. Studies are now being conducted for the feasibility and need for signals at three new locations.

In Ridgecrest a coordinated system on Route 178 may be needed when cross-street traffic increases to the point where signals are warranted at new locations. Currently the signals are at unequal spacing with different side street demands. Coordination may not enhance traffic flow now, but could in the future as more signals are added. The District currently is designing one new signal at Norma St. and planning to construct one later at Richmond Rd. The City of Ridgecrest has plans to provide signals at two locations on streets leading into our highway system.

In the future as Ridgecrest continues to grow into a metropolitan center, further network of local and State signals will likely be needed. When this happens, the District will work together with the local agency to establish whatever coordination is required to achieve optimum traffic flow.

Plans are currently being finalized for a traffic signal at Tucker Road on Route 202 near Tehachapi. Two other signal locations are under consideration and will likely be constructed within the next two years. Signal timing and coordination will be examined at that time.

3. Passing Lanes, Truck-Climbing Lanes, and Turnouts

a. Policies

The District does not have a formal policy for passing opportunity based on ADT, or passing opportunity per mile. The current policy is to locate truck-climbing lanes, passing lanes, and turnouts where operational needs dictate.

b. Current Planning

Turnouts are now needed more than ever before due to the change in striping policy for both horizontal and vertical sight distance restrictions. This policy change has created long lengths of barrier striping. Additional passing lanes and truck climbing lanes are also needed at some locations. These facilities are needed where limited passing opportunity causes quick development of queues, and traffic is mixed. On a route carrying recreational, trucking, and through traffic, turnouts are needed because of driving habits inherent to recreational traffic.

As discussed previously in Seciton B-1b, rather than construct passing lanes on the major corridors south of Lee Vining, extension of existing four-lane sections is planned to provide long stretches of multilane highway that will redistribute the slower and faster traffic.

All other routes have been reviewed to determine the need for passing lanes, truck-climbing lanes, and turnouts. Identified locations for passing and truck-climbing lanes have been placed in our HB-4 candidate list for future programming. Turnout locations have been identified, and using various parameters, placed on a priority list. Programming and construction will be on an annual basis within the District's HB-4 Minor A funds.

c. Future Planning

In the far future, short-term goals will be extended, with the eventual completion of a four-lane corridor on Routes 14 and 395 between the south district boundary and Lee Vining. Additional passing lanes and/or truck-climbing lanes may eventually be required on some of the minor routes as traffic increases.

4. Miscellaneous Capital Outlay Strategies

a. One-Way Streets and/or Couplets

There are no current plans for any one-way streets or couplets to improve traffic flow. The only possible candidate for this strategy might be in the community of Bishop, but prohibitive construction costs may indicate a bypass to be more appropriate.

b. Transit-Related Projects

The only large scale transit-related activities in the district are in the Town of Mammoth Lakes, where an interface between heavy winter ski traffic on Route 203 carry skiers to the ski area from the Town. A previous consultant plan for the Town identified the need for a transportation tram between the Town and the ski slopes. This would be an interface project that could relieve much of the traffic congestion between the Town and the ski slopes.

Minor transit activities take place between Bishop and Lone Pine, Benton and Bishop, June Lake and Gardnerville, Trona and Ridgecrest and within Ridgecrest, Bishop and Death Valley. Many Federal Grant applications for the purchase of vans have been handled through the District. This activity mostly involves Senior Citizens Groups, Handicapped Groups, and the Native American community. Considering the rural nature of the district, this usage represents a good transit program.

c. Curve Improvements and Minor Realignments

There are several locations in the district where curve improvements and minor realignments need to be made. At the present time these locations are being inventoried and will be later prioritized. Programming and construction of these projects will be highly dependent on the District's minor fund allocations.

D. INTERMODAL FACILITIES

1. Park and Ride Facilities

The District has only one park and ride facility located on the eastern city limits of Ridgecrest. This basically serves commuters going to Trona and the Naval Weapons Center test sites. Usage of this lot is reaching capacity and the possibility of expanding this lot is being considered.

A few informal park and ride areas are being utilized near our highway system. These are working well and no plans exist to place them into our system. In the future a park and ride facility may be needed at Mammoth Lakes to serve the winter ski activity.

E. MISCELLANEOUS ITEMS

1. Integration of Long-Range Operations Plans With System Planning

Specific data contained in this Long Range Operations Plan is compatible with the District's Route Concept Reports and System Management Plan. As new information is gained, and priorities change, continuous updates and integration of these plans and reports will occur.

2. Coordination With Other Agencies

The District has an excellent reputation for working cooperatively with all local and other State agencies on a continuous basis. Before operations or system changes are made, all affected agencies are consulted for input.

3. Long-Range Operational Research

a. Needed Research

The greatest improvement in operations that could be achieved would be in the field of snow removal and "black pavement maintenance". We have constructed two experimental locations of "verglimit" to determine if "icy" accidents can be reduced at key locations. Pavement problems have occurred at both projects causing the District to rethink plans for several other locations. An inexpensive method of achieving fast clearing of pavements would greatly enhance our operations in the winter.

b. Possible Research Directions and Goals

The greatest overall improvement in enhancing highway operations can be realized by increased vehicle occupancy. Strategies should be developed to monitor the highway system and develop good private vehicle occupancy data. Windshield surveys within the district indicate an occupancy rate of more than 2 persons per vehicle.

The ADT factor used for establishing priorities of projects could be modified by using a factor recognizing the vehicle-occupancy rate. Districts such as 09 could then better compete for funds. The State might consider conducting research in the field of marketing towards getting more passengers per vehicle.

F. SUMMARY AND CONCLUSIONS

1. Summary

Traffic on the major corridors within the district is expected to increase at the rate of about 3% per year. This will continue to lead to congestion on the two-lane portions during weekends and on weekdays within peak recreational months.

The major goal of the District is to complete the Route 14-395 corridor between the Los Angeles County line and Lee Vining near the junction of Route 120W (Yosemite entrance via Tioga Pass). The goal for Route 395 north of this junction is to provide more passing opportunities and turnouts, particularly at locations of predominant congestion.

Spot operational improvements, and shoulder widening, are main features planned for other routes within the district. Consideration will also be given to the needs for passing opportunities and turnouts as warranted.

Highway safety and operational improvements are a major part of the District's goals to reduce and minimize accidents. A prioritized listing of guardrail, delineators, and recessed pavement markers have been developed. Construction of these items will be on a continuous annual basis within the limitations of the District's minor funds.

2. Conclusions

The direction of the district has been, and will continue to be, pointed towards achieving as high a level of service on the major routes as possible. This is planned to be accomplished by constructing additional lanes and performing a satisfactory level of maintenance on the existing system. Improvements are planned for minor routes on a priority basis as funds allow.

3. Recommendations

Programming of four-lane projects and highway operational improvements should continue on a priority basis using the most current available data. Funding levels should be commensurate with the various program needs.